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|  | COS221 Practical 5 |
|  |  |
|  | Swing Steezy  June 2022 |

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# Task 1: Research

### Overview

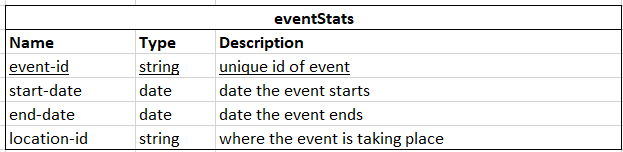
### Structure

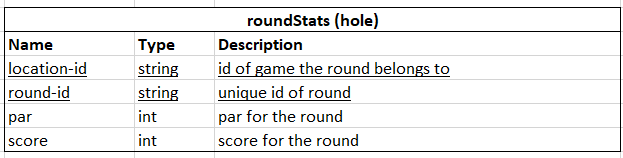
# Task 2: (E)ER Diagram

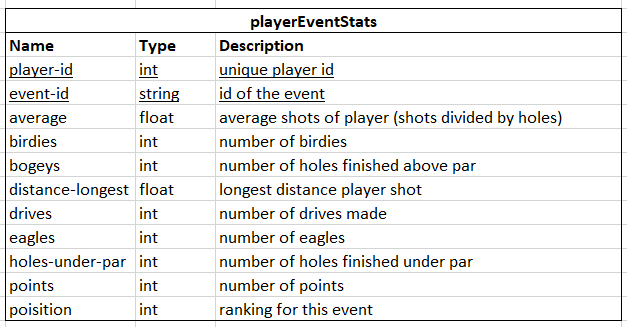
### Overview and Descriptions

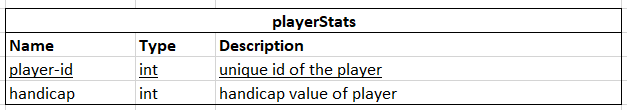
These tables contain the original ideas for what would be needed, in order to provide a sense of direction before beginning the final ER diagram. They were continuously updated as new requirements were discovered and used as the base for the ER diagram.

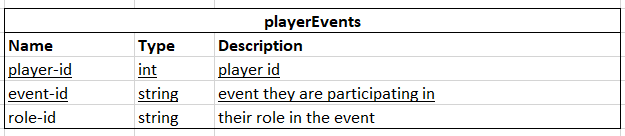


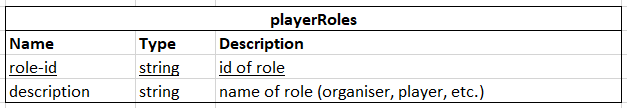


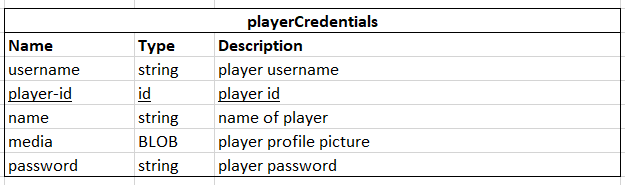


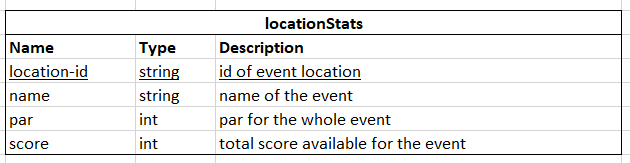






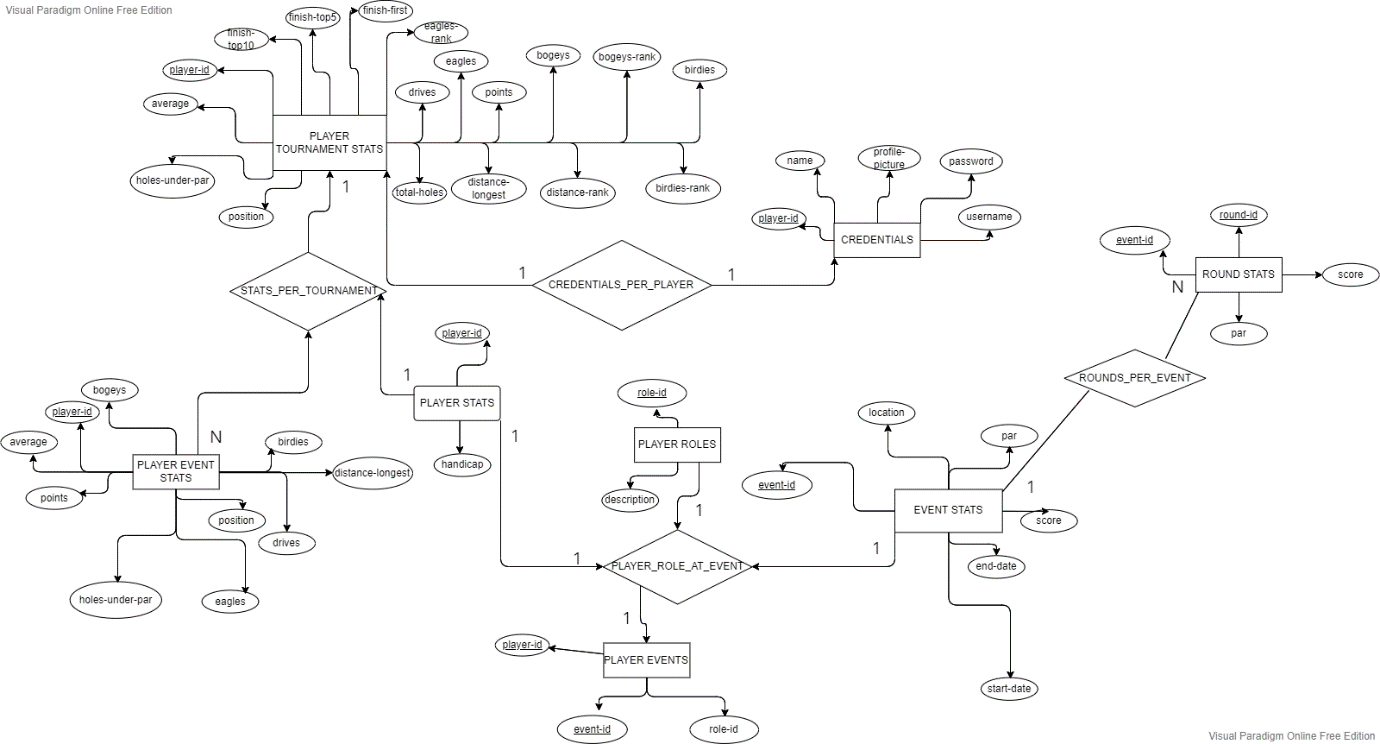






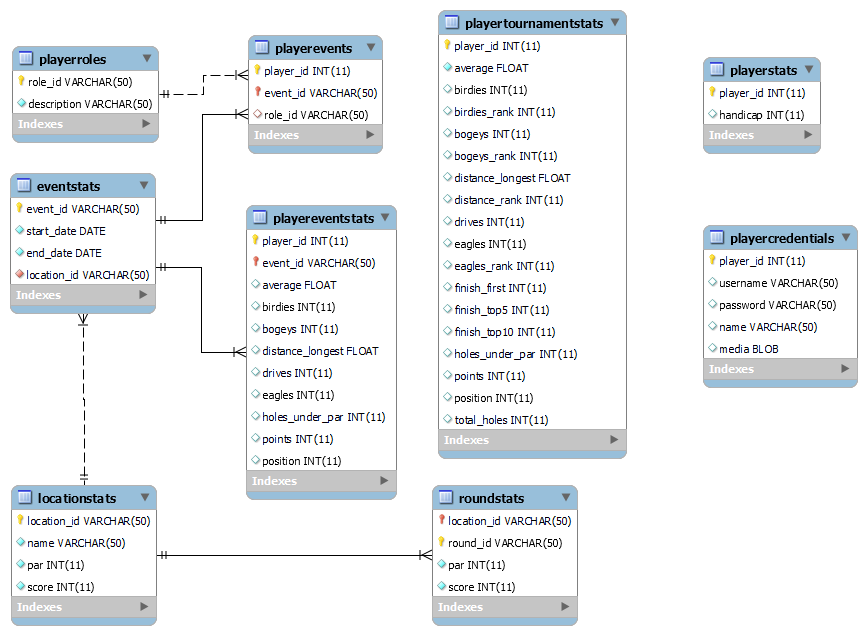
### Version 1

Below is the first draft of the ER diagram, drawn based on the above tables and later expanded upon.



### Final Version

The final version of the ER diagram was generated using MySQL Workbench after the database had been created and contains all elements and relationships we created for the database extension.



# Task 3: (E)ER Diagram to Relational Mapping

# Task 4: Relational Exclusion

### SQL Statements

create table locationStats (location\_id varchar(50) not null primary key, name varchar(50) not null, par int not null, score int not null);

create table playerRoles (role\_id varchar(50) not null primary key, description varchar(50) not null);

create table eventStats (event\_id varchar(50) not null primary key, start\_date date not null, end\_date date not null, location\_id varchar(50) not null, foreign key (location\_id) references locationStats(location\_id));

create table roundStats (location\_id varchar(50) not null, round\_id varchar(50) not null, par int not null, score int not null, primary key (location\_id, round\_id), foreign key (location\_id) references locationStats(location\_id));

CREATE TABLE `sportsdb`.`playerstats` (`player\_id` INT NOT NULL, `handicap` INT NOT NULL, PRIMARY KEY (`player\_id`), CONSTRAINT `playerStats\_id` FOREIGN KEY (`player\_id`) REFERENCES `sportsdb`.`persons` (`id`) ON DELETE NO ACTION ON UPDATE NO ACTION) ENGINE=MyISAM;

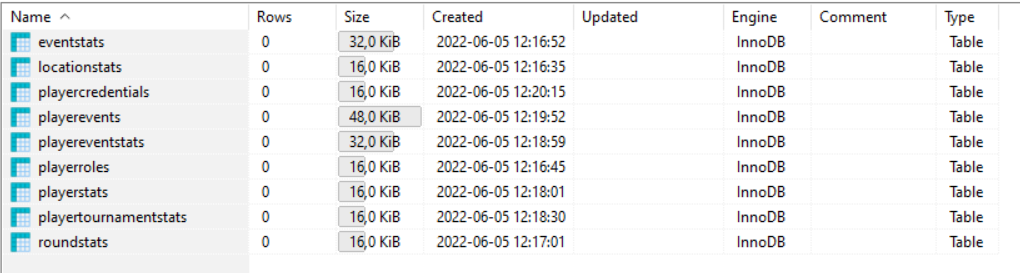
create table playertournamentstats (player\_id int not null, average float not null, birdies int, birdies\_rank int, bogeys int, bogeys\_rank int, distance\_longest float, distance\_rank int, drives int, eagles int, eagles\_rank int, finish\_first int, finish\_top5 int, finish\_top10 int, holes\_under\_par int, points int, position int, total\_holes int, primary key (player\_id), foreign key (player\_id) references persons(id)) engine=MyISAM;

create table playereventstats (player\_id int, event\_id varchar(50), average float, birdies int, bogeys int, distance\_longest float, drives int, eagles int, holes\_under\_par int, points int, position int, primary key (player\_id, event\_id), foreign key (player\_id) references persons(id), foreign key (event\_id) references eventstats(event\_id)) engine=MyISAM;

create table playerevents (player\_id int, event\_id varchar(50), role\_id varchar(50), primary key (player\_id, event\_id), foreign key (player\_id) references persons(id), foreign key (event\_id) references eventstats(event\_id), foreign key (role\_id) references playerroles(role\_id)) engine=MyISAM;

create table playercredentials (player\_id int, username varchar(50), password varchar(50), name varchar(50), media blob, primary key (player\_id), foreign key (player\_id) references persons(id)) engine=MyISAM;

### Visual Database



# Task 6: Sample Data

# Task 7: Analyse and Optimise

### Query 1

The original query is:

When executed in the database, the processing time is

### Query 2

### Query 3